

1. A chemical mechanical polishing apparatus, comprising:
a substrate holder to hold a substrate;
a polishing belt having a polishing surface to contact at least a portion of the
substrate held by the substrate holder while the polishing belt is moving in a first
5 direction in a generally linear path relative to the substrate, the polishing belt having a
plurality of grooves formed therein, the grooves having a depth of at least about 0.02
inches, a width of at least about 0.015 inches, and a pitch of at least about 0.09 inches;
and
a backing member positioned on a side of the polishing belt opposite the substrate
10 holder.

2. The apparatus of claim 1 wherein the grooves are uniformly spaced over the
polishing surface.

15 3. The apparatus of claim 1 wherein the grooves have a depth between about 0.02
and 0.05 inches.

4. The apparatus of claim 3 wherein the grooves have a depth of approximately
0.03 inches.

20 5. The apparatus of claim 1 wherein the grooves have a width between about
0.015 and 0.04 inches.

6. The apparatus of claim 5 wherein the grooves have a width of approximately
25 0.02 inches.

7. The apparatus of claim 1 wherein the grooves have a pitch between about 0.09
and 0.24 inches.

30 8. The apparatus of claim 7 wherein the grooves have a pitch of approximately
0.12 inches.

9. The apparatus of claim 1, further comprising an actuator to urge the substrate and the belt into contact with one another for polishing.

10. The apparatus of claim 1 wherein a fluid layer is interposed between the
5 membrane backing member and the polishing belt.

11. The apparatus of claim 1 wherein the belt has a width at least as wide as the substrate holder.

10 12. The apparatus of claim 1 wherein the belt is driven continuously during
polishing.

13. The apparatus of claim 1 wherein the belt is driven periodically between
polishing operations.

15 14. The apparatus of claim 1 wherein the belt is a continuous belt.

15 15. The apparatus of claim 1 wherein the belt extends between a feed and a take-up roller.

20 16. The apparatus of claim 1 wherein the grooves are oriented substantially
perpendicular to the first direction of motion.

25 17. The apparatus of claim 1 wherein the grooves include a first plurality of
substantially linear grooves and a second plurality of substantially linear grooves oriented
perpendicular to the first plurality of grooves.

18. The apparatus of claim 1 wherein the grooves have an arcuate shape curved
away from the first direction of motion.

30 19. A chemical mechanical polishing apparatus, comprising:
a substrate holder to hold a substrate;

a polishing belt having a polishing surface to contact at least a portion of the substrate held by the substrate holder, the belt movable in a first direction in a generally linear path relative to the substrate, the polishing belt having a plurality of grooves formed therein, the grooves oriented substantially perpendicular to the first direction of motion; and

5 a backing member positioned on a side of the polishing belt opposite the substrate holder.

20. The apparatus of claim 19, wherein the plurality of grooves are substantially

10 linear.

21. A chemical mechanical polishing apparatus, comprising:

a substrate holder to hold a substrate;

a polishing belt having a polishing surface to contact at least a portion of the

15 substrate held by the substrate holder, the polishing belt movable in a first direction in a generally linear path relative to the substrate, the polishing belt having a first plurality of substantially linear grooves and a second plurality of substantially linear grooves formed therein, the first plurality of grooves oriented substantially perpendicular to the second plurality of grooves; and

20 a backing member positioned on a side of the polishing belt opposite the substrate holder.

22. The apparatus of claim 21 wherein the first plurality of grooves is oriented

substantially perpendicular to the first direction.

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23. The apparatus of claim 21 wherein the first and second pluralities of grooves are oriented at about 45 degrees to the first direction.

24. A chemical mechanical polishing apparatus, comprising:

30 a substrate holder to hold a substrate;

a polishing belt having a polishing surface to contact at least a portion of the substrate held by the substrate holder, the polishing belt movable in a first direction in a generally linear path relative to the substrate, the polishing belt having a plurality of

arcuate grooves formed therein, the grooves oriented substantially perpendicular to the first direction of motion; and

a backing member positioned on a side of the polishing belt opposite the substrate holder.

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25. The apparatus of claim 24 wherein the arcuate grooves are bowed away from the first direction.